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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/290,170	04/13/99	ARITA H	H-7769

EXAMINER	
FREDRICKSON,G	
ART UNIT	**PAPER NUMBER**
2836	

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MMC2/0830
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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/290,170	ARITA ET AL.	
	Examiner	Art Unit	
	Gary S. Fredrickson	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

1)☒ Responsive to communication(s) filed on *13 April 1999* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 April 1999* is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a)☐ All b)☐ Some * c)☒ None of the CERTIFIED copies of the priority documents have been:

1.☒ received.

2.☐ received in Application No. (Series Code / Serial Number) _____ .

3.☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
18) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other: .

DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on April 15, 1998. It is noted, however, that applicant has not filed a certified copy of the Japan 10-104349 application as required by 35 U.S.C. 119(b).

Drawings

2. The drawings are objected to because Figures 2, 3, 4, 6, and 11 lack labels on the components. Correction is required.

3. Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect can be deferred until the application is allowed by the examiner.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 4, 6, 9, and 14-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 4, 6, 9, and 14-17 are replete with the use of alternatives separated by the word "or" that makes the claim indefinite as to the actual construction. Claim 9 fails to describe a limitation to an energy and power interchange system in referring to the languages and currencies of countries.

6. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hesse et al. (5,274,571) in view of Shimoda et al. (5,479,358). Hesse et al. discloses in Figure 1 the use of said energy sources (10c) used by said energy generating means (8) and said generated energy amount are controlled in response to said energy amount measured by said measuring equipment (4), note that Hesse et al. teaches that the load

system (6) may consist of one or more pieces of electric energy utilizing apparatus (not shown) (see column 3, lines 50-54). Hesse et al. teaches that the energy sources can be stored thermal or potential energy (see column 2, lines 46-52); however, Hesse et al. does not show the generator itself that would be inherent to use the energy sources. Shimoda et al. discloses in Figure 1 the use of the same control (4000) of the energy supply as Hesse et al. and teaches that any electric power generator may be used, with the example of a gas turbine (see column 8, lines 16-19). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the electric power generator of Shimoda et al. An electric power generator is a necessary component of an energy and power interchange system and Shimoda et al. recognizes that the method of Shimoda et al. of using any electric power generator will produce superior results over the general energy storage and inherent conversion method of Hesse et al.

Claim 8: Regarding Claim 8: Shimoda et al. discloses in Figure 6 the use of an energy path consisting of alternating current (60, electric power), a pipeline (inherent in transmitting steam), a transport path (5700) (heating water and tank), and an electric wave path (alternating current is an electric wave, therefore an alternating current line is an inherent electric wave path); and Hesse et al. teaches the use of direct current electricity sources that inherently would have a direct current energy path (see column 2, lines 46-52), the same as claimed.

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hesse et al. (5,274,571) and Shimoda et al. (5,479,358) as applied to claim 1, and further in view

of *In re Rose*, 105 USPQ 237 (CCPA 1955). Hesse et al. teaches the claimed invention of energy transmitted from one system to another system (8) to (10c) using demand estimation data (optimal timing) (see abstract). Therefore, Hesse et al. and Shimoda et al. discloses the claimed invention except for the size change of scaling the system to a size where it encompasses two time zones. It would have been an obvious matter of design choice to scale up an electric power distribution system, since such a modification would have involved mere change in the size of a component (distribution system). A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

11. Claims 2, 6, 7, 9, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClain (3,909,677) in view of Hesse et al. McClain discloses in Figure 1 an electrical distribution network that may section off load sections (see abstract). It is inherent in the distribution network of McClain that the first systems (12) (feeders) and the second systems (12a) (feeders) may originate from any source and the switching scheme is suitable for either AC or DC power with the control parameter or said transmitted direction of energy (all of Figure 1) is decided in response to said energy amount measured by said measuring equipment (30), (32), (30 prime), and (32 prime); however, McClain does not specifically show a change in control based upon a variation in load (analog measuring) other than a general load condition less than a direct short or switching the power (digital on/off measuring) or the metered control of power. Hesse et al. discloses in Figure 1 the use of individual load monitors (4) that are connected to a load control center (7), note that Hesse et al. teaches that the load

system (6) may consist of one or more pieces of electric energy utilizing apparatus (not shown) (see column 3, lines 50-54). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the full range load monitors of Hesse et al. Controlling power flow based upon load variation would have been an important part of an energy and power interchange system and Hesse et al. recognizes that load control based upon the load monitors with an inherently wider variation in load demand of Hesse et al. would result in superior performance than the simple load and short method of McClain.

Claim 6: Regarding Claim 6: Hesse et al. discloses in Figure 2 that electricity and other energy from (10) is merged together and sent to the load; therefore, it is inherent that said energy path is disposed along other energy transport route and is installed such that said energy path is directly secured to said other transport route or secured to said other energy transport route while sharing a same support structure with said other transport route or said energy path is installed at a point higher than 1000 meters below the sea level (note that the energy path in Hess et al. is above sea level), the same as claimed.

Claim 7: Regarding Claim 7: Hesse et al. in Figure 2 discloses a power storage equipment (10c) that is installed in at least one of said systems and the input and output of said power storage equipment is controlled (8) (scheduler) in response to change of power flow rate between systems (load demand information, (6) to (8)), the same as claimed.

Claim 9: Regarding Claim 9: As best as the examiner understands, the limitation in the claim appears to be in the way that information concerning the energy and power interchange system is transmitted, specifically "information is transmitted by way of translating machines." Hesse et al. discloses in Figure 1 the use of a data link (5) that transmits information from the load monitor to the computer load control center, it is well known in the art that a data link to a computer can be world wide. Therefore, Hesse et al. discloses the same information data link as claimed.

Claim 16: Regarding Claim 16: As best as the examiner understands, the limitation in the claim appears to be power control for variations in load, predicted load, reserve power, and cost. Shimoda et al. teaches power control for variations in demand and predicted load (see abstract). Hesse et al. teaches reserve power and cost (see abstract), the same as claimed.

12. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over McClain and Hesse et al. as applied to claim 2 above. Hesse et al. discloses in Figure 2 that said energy and power interchange system includes an interconnection adjustment equipment (8) (scheduler) which transmits converted values to respective systems (11) in response to information measured by said measuring equipment (6) to (8) (load demand information), wherein said converted values are converted values of expenses including energy generating expense and energy transmission expense (see abstract, note that received energy expenses would include generating and transmission expenses). As best understood by the examiner, the converted values of environmental load including generated carbon oxide gas, (interpreted by the examiner as either CO or

CO2), refers to a limitation on pollutants. Hesse et al. further discloses in Figure 2, utility override information taken into account by the scheduler (8), Hesse et al. further teaches that electric utility company concerns are economic, regulatory, and environmental (see column 1, lines 13-17); therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to schedule for environmental constraints. Accounting for all utility limitations would be an important part of an energy and power interchange system and Hesse et al recognizes that environmental factors are a utility limitation.

13. Claims 5 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClain and Hesse et al. as applied to claim 4 above. Hesse et al. in Figure 2 discloses an energy and power interchange system that includes an interchange administration equipment (8) (scheduler) which carries out settlement, conclusion of a contract or an interchange control using said converted values transmitted from said interconnection adjustment equipment (utility pricing information input), the same as claimed.

Claim 15: Regarding Claim 15: Hess et al. teaches environmental factors that would include CO2 pollution (see column 1, lines 14-15) and electrical energy or money (see abstract), the same as claimed.

14. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over McClain and Hesse et al. as applied to claim 2 above, and in further view of Shimoda et al and *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Hesse et al. discloses in Figure 1 the use of said energy sources (10c) used by said energy generating means (8) and said

generated energy amount are controlled in response to said energy amount measured by said measuring equipment (4). Hesse et al. teaches that the energy sources can be stored thermal or potential energy (see column 2, lines 46-52) and may be a plurality of sources (i.e. "any means"), it is inherent that stored potential energy is the definition of a hydroelectric power plant; however, Hesse et al. does not show the generator itself that would be inherent to use the energy sources. Shimoda et al. discloses in Figure 1 the use of the same control (4000) of the energy supply as Hesse et al. and teaches that any electric power generator may be used. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use an electric power generator as described by Shimoda et al. An electric power generator is a necessary component of an energy and power interchange system and Shimoda et al. recognizes this fact. Hesse et al. discloses in Figure 1 a plurality of sources and further teaches the same at column 2, lines 46-52 and as described above may contain thermal and hydroelectric power facilities. Shimoda et al. further teaches that the generated power amount is controlled such that overall fuel consumption of said system which includes a thermal power facilities is lower than predetermined value and energy is transmitted from said system (see column 8, lines 32-36 in the discussion of load and the gas to be injected into the gas turbine; i.e., the fuel consumption of a gas turbine). Shimoda et al. discloses the claimed invention except for fuel control on a plurality of thermal power facilities. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use more than one thermal power generator,

since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

15. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over McClain and Hesse et al. as applied to claim 2 above, and in further view of Naganuma et al. (5,537,339). McClain teaches that power can be switched to a load from two different power sources and further teaches that one system can be switched for a system with a faulted sections, inherently of poor quality to a section with good quality (see abstract); however, McClain does not specifically teach adjusting the power switch over a wider range than a short to achieve optimal quality. Naganuma et al. teaches that an electric supply network that may include a plurality of power stations and grid of transmission lines, may be controlled in dependence on the power required by the users connected to the network, with a control system to achieve optimum power generation in dependence on predicted and actual power requirements. It is inherent that the general users of a power network desire the optimal quality of power possible (column 1, lines 16-22) and; therefore, Naganuma et al. inherently teaches a system having electric power of good quality and a system having electric power of poor quality and said system is controlled such that power flow flows from said system of good electric power to said system of poor electric power. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to optimal power controlling method of Naganuma et al. Optimal power control would be an important feature of an energy and power interchange system and Naganuma et al. recognizes

that control over all aspects of a power network will produce optimal power control and inherent quality over the method of McClain.

16. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClain in view of Hesse et al. as applied to claim 2 above. Hess et al teaches that an alternating current/direct current converter is provided between said system and said energy path (10c) (column 2, lines 46-52), the AC/DC converter is inherent in being able to store power in capacitors or batteries (DC systems). Hess et al. further teaches that the AC/DC converter inherent in the energy storage scheduler (8) receives information (column 37-40) that is used to control the AC/DC converter (column 4, 30-32). It is inherent in the function of the controller that it is a computer (column 4, lines 20-50) and it is obvious and well known in the art that a computer can receive information from telephone circuit communication facilities. Hess et al. further teaches the use of a timer and providing optimal timing for charging the storage means, it would be inherent that the optimal timing may include a delay. Therefore, Hess et al. teaches an AC/DC converter, telephone circuit communication facilities and delay timer, the same as claimed.

Claim 14: Regarding Claim 14: Hess et al. teaches the information on said energy and power interchange system, or information to which time information is detected by a transmission time difference detector for detecting time difference for information transmission is added, or said interchanged electric energy, restriction on said interchanged electric energy, or operation information on a direct current power transmission system (see column 3, lines 3-19), the same as claimed.

17. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over McClain in view of Hesse et al. McClain discloses in Figure 1 and electrical distribution network that may section off load sections (see abstract). It is inherent in the distribution network of McClain that the first systems (12) (feeders) and the second systems (12a) (feeders) may originate from any source on a power grid, including a plurality of countries, and the switching scheme is suitable for either AC or DC power with the control parameter or said transmitted direction of energy (all of Figure 1) is decided in response to said energy amount measured by said measuring equipment (30), (32), (30 prime), and (32 prime); however, McClain does not specifically show a change in control based upon a variation in load (analog measuring) other than a general load condition less than a direct short or switching the power (digital on/off measuring) or the metered control of power. Hesse et al. discloses in Figure 1 the use of individual load monitors (4) that are connected to a load control center (7), note that Hesse et al. teaches that the load system (6) may consist of one or more pieces of electric energy utilizing apparatus (not shown) (see column 3, lines 50-54). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the full range load monitors of Hesse et al. Controlling power flow based upon load variation would have been an important part of an energy and power interchange system and Hesse et al. recognizes that load control based upon the load monitors with an inherently wider variation in load demand of Hesse et al. would result in superior performance than the simple load and short method of McClain.

18. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over McClain in view of Hesse et al. McClain discloses in Figure 1 and electrical distribution network that may section off load sections (see abstract). It is inherent in the distribution network of McClain that the first systems (12) (feeders) and the second systems (12a) (feeders) may originate from any source on a power grid, including a plurality of countries, and the switching scheme is suitable for either AC or DC power with the control parameter or said transmitted direction of energy (all of Figure 1) is decided in response to said energy amount measured by said measuring equipment (30), (32), (30 prime), and (32 prime); however, McClain does not specifically show a change in control based upon a variation in load (analog measuring) other than a general load condition less than a direct short or switching the power (digital on/off measuring) or the metered control of power. Hesse et al. discloses in Figure 1 the use of individual load monitors (4) that are connected to a load control center (7), note that Hesse et al. teaches that the load system (6) may consist of one or more pieces of electric energy utilizing apparatus (not shown) (see column 3, lines 50-54). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the full range load monitors of Hesse et al. Controlling power flow based upon load variation would have been an important part of an energy and power interchange system and Hesse et al. recognizes that load control based upon the load monitors with an inherently wider variation in load demand of Hesse et al. would result in superior performance than the simple load and short method of McClain.

Claim 18: Regarding Claim 18: Hesse et al. discloses in Figure 2 that said energy and power interchange system includes an interconnection adjustment equipment (8) (scheduler) which transmits converted values to respective systems (11) in response to information measured by said measuring equipment (6) to (8) (load demand information), wherein said converted values are converted values of expenses including energy generating expense and energy transmission expense (see abstract, note that received energy expenses would include generating and transmission expenses). As best understood by the examiner, the converted values of environmental load including generated carbon oxide gas, (interpreted by the examiner as either CO or CO2), refers to a limitation on pollutants. Hesse et al. further discloses in Figure 2, utility override information taken into account by the scheduler (8), Hesse et al. further teaches that electric utility company concerns are economic, regulatory, and environmental (see column 1, lines 13-17); therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to schedule for environmental constraints, the same as claimed.

19. Any inquiry concerning this communication from the examiner should be directed to Gary S. Fredrickson, whose telephone number is (703) 305-0759. The examiner can normally be reached on Monday-Friday (8:00-4:30). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Josie Ballato can be reached on (703) 308-0269.

Gary S. Fredrickson
Patent Examiner

Josie Ballato
Supervisory Patent Examiner
Technology Center 2800

8/25/00

Art Unit 2836

gsf
August 23, 2000